AIR QUALITY IMPACT ANALYSIS FOR THE PROPOSED MILPITAS TOWN CENTER REDEVELOPMENT, CITY OF MILPITAS

Prepared for:
Shapell Industries of Northern California

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INTRODUCTION

This report presents the results of the air quality impact analysis conducted for the proposed Milpitas Town Center redevelopment project in Milpitas, California. Currently, the site has 246,925 square feet of retail development and 35,000 square feet of theaters. The proposed project would eliminate the existing movie theater and remodel the retail space, although the total amount of retail floor space would remain the same. The project would also add 65 townhomes at the north end of the project site. The remodeled retail space would include a 54,000 square foot supermarket.

This report describes the impacts of the proposed project on local and regional air quality. Its was prepared using methodologies and assumptions recommended within the air quality impact assessment guidelines of the Bay Area Air Quality Management District.[1] In keeping with these recommendations, the report addresses existing air quality, construction-related impacts, direct and indirect emissions associated with the project, the impacts of these emissions on both the local and regional scale, and mitigation measures warranted to reduce or eliminate any identified significant impacts.

EXISTING CONDITIONS

Air Pollution Climatology

The amount of a given pollutant in the atmosphere is determined by the amount of pollutant released and the atmosphere's ability to transport and dilute the pollutant. The major determinants of transport and dilution are wind, atmospheric stability, terrain and, for photochemical pollutants, sunshine.

Northwest winds and northerly winds are most common in the project area, reflecting the orientation of the Bay and the San Francisco Peninsula. Winds from these directions carry pollutants released by autos and factories from upwind areas of the Peninsula and the East Bay toward Milpitas, particularly during the summer months. Winds are lightest on the average in fall and winter. Every year in fall and winter there are periods of several days when winds are very light and local pollutants can build up.

Pollutants can be diluted by mixing in the atmosphere both vertically and horizontally. Vertical mixing and dilution of pollutants are often suppressed by inversion conditions, when a warm layer of air traps cooler air close to the surface. During the summer, inversions are generally elevated above ground level, but are present over 90 percent of the time in both the morning and afternoon. In winter, surface-based inversions dominate in the morning hours, but frequently dissipate by afternoon.

Topography can restrict horizontal dilution and mixing of pollutants by creating a barrier

[1] Bay Area Air Quality Management District, BAAQMD CEQA Guidelines, April 1996 (Revised December 1999).

to air movement. The South Bay has significant terrain features that affect air quality. The Santa Cruz Mountains and Hayward Hills on either side of the South Bay restrict horizontal dilution, and this alignment of the terrain also channels winds from the north to south, carrying pollution from the northern Peninsula toward Milpitas.

The combined effects of moderate ventilation, frequent inversions that restrict vertical dilution and terrain that restrict horizontal dilution give Milpitas a relatively high atmospheric potential for pollution compared to other parts of the San Francisco Bay Air Basin and provide a high potential for transport of pollutants to the east and south.

Ambient Air Quality Standards

Criteria Pollutants

Both the U. S. Environmental Protection Agency and the California Air Resources Board have established ambient air quality standards for common pollutants. These ambient air quality standards are levels of contaminants that represent safe levels that avoid specific adverse health effects associated with each pollutant. The ambient air quality standards cover what are called "criteria" pollutants because the health and other effects of each pollutant are described in criteria documents. Table 1 identifies the major criteria pollutants, characteristics, health effects and typical sources. The federal and California state ambient air quality standards are summarized in Table 2.

The federal and state ambient standards were developed independently with differing purposes and methods, although both processes attempted to avoid health-related effects. As a result, the federal and state standards differ in some cases. In general, the California state standards are more stringent. This is particularly true for ozone and particulate matter (PM_{10} and $PM_{2.5}$)

The U.S. Environmental Protection Agency established new national air quality standards for ground-level ozone and for fine particulate matter in 1997. The existing 1-hour ozone standard of 0.12 PPM microns or less) is to be phased out and replaced by an 8-hour standard of 0.08 PPM. Implementation of the 8-hour standard was delayed by litigation, but was determined to be valid and enforceable by the U. S. Supreme Court in a decision issued in February of 2001.

Suspended particulate matter (PM) is a complex mixture of tiny particles that consists of dry solid fragments, solid cores with liquid coatings, and small droplets of liquid. These particles vary greatly in shape, size and chemical composition, and can be made up of many different materials such as metals, soot, soil, and dust. "Inhalable" PM consists of particles less than 10 microns in diameter, and is defined as "suspended particulate matter" or PM_{10}. Fine particles are less than 2.5 microns in diameter ($PM_{2.5}$). $PM_{2.5}$, by definition, is included in PM_{10}.

In 1997 new national standards for fine Particulate Matter (diameter 2.5 microns or less)

were adopted for 24-hour and annual averaging periods. The current PM_{10} standards were to be retained, but the method and form for determining compliance with the standards were revised.

The State of California regularly reviews scientific literature regarding the health effects and exposure to PM and other pollutants. On May 3, 2002, the California Air Resources Board (CARB) staff recommended lowering the level of the annual standard for PM_{10} and establishing a new annual standard for $PM_{2.5}$ (particulate matter 2.5 micrometers in diameter and smaller). The new standards became effective on July 5, 2003.

In addition to the concentration ambient standards shown in Table 3, the state of California has a visibility standard of "extinction coefficient of 0.23 per kilometer, visibility 10 miles or more due to particles when relative humidity is less than 70%. There is no equivalent federal ambient air quality standard for visibility.

Toxic Air Contaminants

In addition to the criteria pollutants discussed above, Toxic Air Contaminants (TACs) are another group of pollutants of concern. There are many different types of TACs, with varying degrees of toxicity. Sources of TACs include industrial processes such as petroleum refining and chrome plating operations, commercial operations such as gasoline stations and dry cleaners, and motor vehicle exhaust. Cars and trucks release at least forty different toxic air contaminants. The most important, in terms of health risk, are diesel particulate, benzene, formaldehyde, 1,3-butadiene and acetaldehyde.

Public exposure to TACs can result from emissions from normal operations, as well as accidental releases. Health effects of TACs include cancer, birth defects, neurological damage and death.

Ambient Air Quality

Criteria Air Pollutants

Area Air Quality Management District (BAAQMD) monitors air quality at several locations within the San Francisco Bay Air Basin. The closest multi-pollutant monitoring sites to the project site are located in downtown San Jose on Fourth Street and in Fremont on Chapel Way. Table 3 summarizes exceedances of State and Federal standards at these monitoring sites during the period 2000-2002. Table 3 shows that ozone and PM_{10} exceed the state standards in the South Bay. Violations of the carbon monoxide standards had been recorded at the downtown San Jose site prior to 1992.

Of the three pollutants known to at times exceed the state and federal standards in the project area, two are regional pollutants. Both ozone and particulate matter (PM_{10} and $PM_{2.5}$) are considered regional pollutants in that concentrations are not determined by proximity to individual sources, but show a relative uniformity over a region. Thus, the

Table 1: Major Criteria Pollutants

Pollutant	Characteristics	Health Effects	Major Sources
Ozone	A highly reactive photochemical pollutant created by the action of sunshine on ozone precursors (primarily reactive hydrocarbons and oxides of nitrogen. Often called photochemical smog.	•Eye Irritation •Respiratory function impairment.	The major sources ozone precursors are combustion sources such as factories and automobiles, and evaporation of solvents and fuels.
Carbon Monoxide	Carbon monoxide is an odorless, colorless gas that is highly toxic. It is formed by the incomplete combustion of fuels.	•Impairment of oxygen transport in the bloodstream. •Aggravation of cardiovascular disease. •Fatigue, headache, confusion, dizziness. •Can be fatal in the case of very high concentrations.	Automobile exhaust, combustion of fuels, combustion of wood in woodstoves and fireplaces.
Nitrogen Dioxide	Reddish-brown gas that discolors the air, formed during combustion.	•Increased risk of acute and chronic respiratory disease.	Automobile and diesel truck exhaust, industrial processes, fossil-fueled power plants.
Sulfur Dioxide	Sulfur dioxide is a colorless gas with a pungent, irritating odor.	•Aggravation of chronic obstruction lung disease. •Increased risk of acute and chronic respiratory disease.	Diesel vehicle exhaust, oil-powered power plants, industrial processes.
Particulate Matter	Solid and liquid particles of dust, soot, aerosols and other matter which are small enough to remain suspended in the air for a long period of time.	•Aggravation of chronic disease and heart/lung disease symptoms.	Combustion, automobiles, field burning, factories and unpaved roads. Also a result of photochemical processes.

Table 2: Federal and State Ambient Air Quality Standards

Pollutant	**Averaging Time**	**Federal Primary Standard**	**State Standard**
Ozone	1-Hour 8-Hour	0.12 PPM 0.08 PPM	0.09 PPM --
Carbon Monoxide	8-Hour 1-Hour	9.0 PPM 35.0 PPM	9.0 PPM 20.0 PPM
Nitrogen Dioxide	Annual Average 1-Hour	0.05 PPM --	-- 0.25 PPM
Sulfur Dioxide	Annual Average 24-Hour 1-Hour	0.03 PPM 0.14 PPM --	-- 0.05 PPM 0.25 PPM
PM_{10}	Annual Average 24-Hour	50 $\mu g/m^3$ 150 $\mu g/m^3$	20 $\mu g/m^3$ 50 $\mu g/m^3$
$PM_{2.5}$	Annual 24-Hour	15 $\mu g/m^3$ 65 $\mu g/m^3$	12 $\mu g/m^3$ --
Lead	Calendar Quarter 30 Day Average	1.5 $\mu g/m^3$ --	-- 1.5 $\mu g/m^3$
Sulfates	24 Hour	25 $\mu g/m^3$	--
Hydrogen Sulfide	1-Hour	0.03 PPM	--
Vinyl Chloride	24-Hour	0.01 PPM	--

PPM = Parts per Million
$\mu g/m^3$ = Micrograms per Cubic Meter

Table 3: Summary of Criteria Pollutant Air Quality Data for San Jose Fourth Street and Fremont Chapel Way Sites

Pollutant	Standard	Site	Days Exceeding Standard in:		
			2000	2001	2002
Ozone	Federal 1-Hour	San Jose Fremont	0 0	0 0	0 0
Ozone	State 1-Hour	San Jose Fremont	0 2	2 3	0 3
Ozone	Federal 8-Hour	San Jose Fremont	0 0	0 0	0 0
Carbon Monoxide	State/Federal 8-Hour	San Jose Fremont	0 0	0 0	0 0
Nitrogen Dioxide	State 1-Hour	San Jose Fremont	0 0	0 0	0 0
PM_{10}	Federal 24-Hour	San Jose Fremont	0 0	0 0	0 0
PM_{10}	State 24-Hour	San Jose Fremont	7 1	4 3	0 1
$PM_{2.5}$	Federal 24-Hour	San Jose Fremont	0 0	0 0	0 0

Source: California Air Resources Board, Aerometric Data Analysis and Management System (ADAM), (www.arb.ca.gov/adam/), 2003.

data shown in Table 3 for ozone and PM_{10} provide a good characterization of levels of these pollutants on the project site.

Carbon monoxide is a local pollutant, i.e., high concentrations are normally only found very near sources. The major source of carbon monoxide, a colorless, odorless, poisonous gas, is automobile traffic. Elevated concentrations, therefore, are usually only found near areas of high traffic volumes.

Toxic Air Contaminants

The air monitoring network operated by the District includes gaseous samples collected over 24-hour periods on a 12-day sampling frequency. The network began in 1986 with six sites, and has gradually been expanded to its present size of 20 sites. The analytical protocol includes the following 12 gaseous compounds: benzene, carbon tetrachloride, chloroform, ethylene dibromide, ethylene dichloride, methyl tert butyl ether (MTBE), methylene chloride, perchloroethylene, toluene, trichloroethane, trichloroethylene, and vinyl chloride. Year 2001 data from the San Jose Fourth Street monitoring site are shown in Table 4.

As part of the Children's Environmental Health Protection Program, the California Air Resources Board (CARB) performed monitoring programs in six communities around the state where children are typically present, such as schools and daycare centers, and near sources of air pollution, including busy highways and industry. At each site, approximately 40 toxic air pollutants were measured. The closest location to the project site was the Lockwood Elementary School in Oakland.

The results of the monitoring and health risk analysis at the Lockwood Elementary School were:[2]

- Total risk from the 10 most important TACs was calculated as 676 in one million.
- About 71% of the total risk was attributable to diesel particulate.
- Benzene contributed approximately 8% of the calculated potential cancer risk.
- Formaldehyde contributed approximately 2% of the calculated potential cancer risk.
- 1,3-butadiene contributed approximately 10% of the calculated potential cancer risk.
- Acetaldehyde contributed less than 1% of the calculated potential risk.
- Total risk from the 10 most important TACs was calculated as 676 in one million.
- About 71% of the total risk was attributable to diesel particulate.

Attainment Status and Regional Air Quality Plans

The federal Clean Air Act and the California Clean Air Act of 1988 require that the State

[2] www.arb.ca.gov/ch/aq/fruitvale/fv_cancerrisk.pff

Table 4: Summary of 2001 Ambient Air Toxics Monitoring Data for San Jose Fourth Street Site

Compound	LOD (ppb)	% of Samples < LOD	Maximum Conc. (ppb)	Minimum Conc. (ppb)	Mean Conc. (ppb)
Benzene	0.10	0	2.50	0.20	0.68
Chloroform	0.02	94	0.08	<0.02	0.02
Carbon Tetrachloride	0.01	0	0.11	0.09	0.10
Ethylene Dibromide	0.02	100	<0.02	<0.02	<0.02
Ethylene Dichloride	0.10	100	<0.10	<0.10	<0.10
Methyl Tert Butyl Ether	0.50	29	4.60	<0.50	0.96
Methylene Chloride	0.50	94	0.60	<0.50	0.27
Perchloroethylene	0.01	3	0.22	<0.01	0.06
Toluene	0.10	0	5.40	0.30	1.49
1, 1, 1 - Trichloroethane	0.05	23	0.09	<0.05	0.05
Trichloroethylene	0.08	100	<0.08	<0.08	<0.08
Vinyl Chloride	0.30	100	<0.30	<0.30	<0.30

LOD = the limit of detection of the analytical method used.
ppb = parts per billion
Source: Bay Area Air Quality Management District, Toxic Air Contaminant Control Program Annual Report 2001, July 2003.

Air Resources Board, based on air quality monitoring data, designate portions of the state where the federal or state ambient air quality standards are not met as "nonattainment areas." Because of the differences between the national and state standards, the designation of nonattainment areas is different under the federal and state legislation.

The Bay Area currently had until recently attained all federal standards. In June of 1998 the U.S. Environmental Protection Agency reclassified the Bay Area from "maintenance area" to nonattainment for ozone based on violations of the federal standards at several locations in the air basin. This reversed the air basin's reclassification to "maintenance area" for ozone in 1995. Reclassification required an update to the region's federal air quality plan.

Under the California Clean Air Act Santa Clara County is a nonattainment area for ozone and PM_{10}. The county is either attainment or unclassified for other pollutants. The California Clean Air Act requires local air pollution control districts to prepare air quality attainment plans. These plans must provide for district-wide emission reductions of five percent per year averaged over consecutive three-year periods or if not, provide for adoption of "all feasible measures on an expeditious schedule."

Sensitive Receptors

The Bay Area Air Quality Management District defines sensitive receptors as facilities where sensitive receptor population groups (children, the elderly, the acutely ill and the chronically ill) are likely to be located. These land uses include residences, schools playgrounds, child care centers, retirement homes, convalescent homes, hospitals and medical clinics. The closet sensitive receptors are residences located directly west of the site.

Significance Criteria

The document *BAAQMD CEQA Guidelines*[3] provide the following definitions of a significant air quality impact:

- A project contributing to carbon monoxide (CO) concentrations exceeding the State Ambient Air Quality Standard of 9 parts per million (ppm) averaged over 8 hours or 20 ppm for 1 hour would be considered to have a significant impact.

- A project that generates criteria air pollutant emissions in excess of the BAAQMD annual or daily thresholds would be considered to have a significant air quality impact. The current thresholds are 15 tons/year or 80 pounds/day for Reactive

[3] Bay Area Air Quality Management District, BAAQMD CEQA Guidelines, 1996 (Revised December 1999).

Organic Gases (ROG), Nitrogen Oxides (NO_x) or PM_{10}. Any proposed project that would individually have a significant air quality impact would also be considered to have a significant cumulative air quality impact.

- Any project with the potential to frequently expose members of the public to objectionable odors would be deemed to have a significant impact.

- Any project with the potential to expose sensitive receptors or the general public to substantial levels of toxic air contaminants would be deemed to have a significant impact.

The BAAQMD significance threshold for construction dust impact is based on the appropriateness of construction dust controls. The BAAQMD guidelines provide feasible control measures for construction emission of PM_{10}. If the appropriate construction controls are to be implemented, then air pollutant emissions for construction activities would be considered less-than-significant.

CHECKLIST DISCUSSION

Would the proposal:

a) Conflict with or obstruct implementation of the applicable air quality plan?

The San Francisco Bay Area Air Basin is currently non-attainment for ozone (state and federal ambient standards) and PM_{10} (state ambient standard). While air quality plans exist for ozone, none exists (or is currently required) for PM_{10}. The Revised San Francisco Bay Area Ozone Attainment Plan for the 1-Hour National Ozone Standard[4] is the current ozone air quality plan required under the federal Clean Air. The state-mandated regional air quality plan is the Bay Area 2000 Clean Air Plan.[5] These plans contain mobile source controls, stationary source controls and transportation control measures to be implemented in the region to attain the state and federal ozone standards within the Bay Area Air Basin.

A project would be judged to conflict with or obstruct implementation of the regional air quality plan if it would be inconsistent with the growth assumptions, in terms of population, employment or regional growth in Vehicle Miles Traveled. The project would not conflict with any of the growth assumptions made in the preparation of these plans nor obstruct implementation of any of the proposed control measures contained in these plans.

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[4] Bay Area Air Quality Management District, Revised San Francisco Bay Area Ozone Attainment Plan for the 1-Hour National Ozone Standard, October 24, 2001.

[5] Bay Area Air Quality Management District, Bay Area 2000 Clean Air Plan and Triennial Assessment, December 20, 2000.

b. Violate any air quality standard or contribute substantially to an existing or projected air quality violation?

Development projects in the Bay Area are most likely to "violate any air quality standard or contribution substantially to an existing or projected air quality violation" through generation of vehicle trips. New vehicle trips add to carbon monoxide concentrations near streets providing access to the site.

The Bay Area Air Quality Management District's *BAAQMD CEQA Guidelines* recommends estimation of carbon monoxide concentrations for projects where project traffic would:

- impact intersections or roadway links operating at Level of Service D, E, or F or
- would cause Level of Service to decline to D, E, or F; or
- where project traffic would increase traffic volumes on nearby roadways by 10% or more.

A screening form of the CALINE-4 computer simulation model was applied to four intersections affected by project traffic that meet the above criterion for modeling. Table 4 shows the results of the CALINE-4 analysis for the peak 1-hour and 8-hour traffic periods in parts per million (PPM). The 1-hour values are to be compared to the federal 1-hour standard of 35 PPM and the state standard of 20 PPM. The 8-hour values in Table 4 are to be compared to the state and federal standard of 9 PPM.

Table 4 shows that existing predicted concentrations near the intersections meet the 1-hour and 8-hour standards. Traffic from the proposed project would increase concentrations by up to 0.2 PPM, but concentrations would remain below the most stringent state or federal standards. Since project traffic would not cause any new violations of the 8-hour standards for carbon monoxide, nor contribute substantially to an existing or projected violation, project impacts on local carbon monoxide concentrations are considered to be less-than-significant.

c. Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)?

Vehicle trips generated by the project would result in air pollutant emissions affecting the entire San Francisco Bay Air Basin. Regional emissions associated with project vehicle use have been calculated using the URBEMIS-2002 emission model. Emissions associated with existing uses to be removed, and the net change was also estimated using the URBEMIS-2002 model. The methodology used in estimating vehicular emissions is described in Attachment 2.

The incremental daily emission increase associated with the project is identified in Table 6 for reactive organic gases and oxides of nitrogen (two precursors of ozone) and PM_{10}. The Bay Area Air Quality Management District has established threshold of significance for ozone precursors and PM_{10} of 80 pounds per day. The incremental increase in emissions with the proposed project shown in Table 5 would not exceed these thresholds of significance for any pollutant, so the proposed project would have a less-than-significant effect on regional air quality.

d. Expose sensitive receptors to substantial pollutant concentrations?

The proposed project would require demolition of existing buildings. The physical demolition of existing structures and other infrastructure are construction activities with a high potential for creating air pollutants. In addition to the dust created during demolition, substantial dust emissions could be created as debris is loaded into trucks for disposal.

After removal of existing structures, construction dust would continue to affect local air quality during construction of the project. Construction activities would generate exhaust emissions from vehicles/equipment and fugitive particulate matter emissions that would affect local air quality.

The effects of construction activities would be increased dustfall and locally elevated levels of PM_{10} downwind of construction activity. Construction dust has the potential for creating a nuisance at nearby properties. This impact is considered potentially significant.

Mitigation: Require implementation of the following dust control measures by contractors during demolition of existing structures:

- Watering should be used to control dust generation during demolition of structures and break-up of pavement.
- Cover all trucks hauling demolition debris from the site.
- Use dust-proof chutes to load debris into trucks whenever feasible.

Require implementation of the following dust control measures by construction contractors during all construction phases:

- Water all active construction areas at least twice daily.
- Watering or covering of stockpiles of debris, soil, sand or other materials that can be blown by the wind.
- Cover all trucks hauling soil, sand, and other loose materials or require all trucks to maintain at least two feet of freeboard.
- Pave, apply water three times daily, or apply (non-toxic) soil stabilizers on all unpaved access roads, parking areas and staging areas at construction sites.
- Sweep daily (preferably with water sweepers) all paved access road, parking areas and staging areas at construction sites.

Table 4: Worst Case Carbon Monoxide Concentrations Near Selected Intersections, in PPM

Intersection	Existing (2004)		Existing + Background (2004)		Existing + Background + Project (2004)	
	1-Hr	8-Hr	1-Hr	8-Hr	1-Hr	8-Hr
Abbott Ave./ W. Calaveras	10.6	7.5	10.9	7.7	11.0	7.8
Abel Street/ W. Calaveras	9.8	6.9	10.2	7.2	10.4	7.3
Milpitas Blvd./ E. Calaveras	10.3	7.3	10.5	7.5	10.7	7.6
Hillview Drive/ E. Calaveras	9.6	6.8	9.8	6.9	9.9	7.0
Most Stringent Standard	20.0	9.0	20.0	9.0	20.0	9.0

Table 5: Project Regional Emissions in Pounds Per Day

	Reactive Organic Gases	Nitrogen Oxides	PM_{10}
New Proposed Uses	122.2	118.4	82.5
Existing Uses Removed	96.9	94.8	66.4
Net Increase	25.3	23.6	16.1
BAAQMD Significance Threshold	80.0	80.0	80.0

- Sweep streets daily (preferably with water sweepers) if visible soil material is carried onto adjacent public streets.
- Hydroseed or apply non-toxic soil stabilizers to inactive construction areas.
- Enclose, cover, water twice daily or apply non-toxic soil binders to exposed stockpiles (dirt, sand, etc.).
- Limit traffic speeds on unpaved areas to 15 mph.
- Install sandbags or other erosion control measures to prevent silt runoff to public roadways.

Implementation of the measures would reduce construction impacts of the project to a less than significant level.

e. Create objectionable odors affecting a substantial number or people?

During construction the various diesel-powered vehicles and equipment in use on the site would create odors. These odors are temporary and not likely to be noticeable much beyond the project boundaries. The potential for diesel odors impacts is less-than-significant.

ATTACHMENT 1: CALINE-4 MODELING

The CALINE-4 model is a fourth-generation line source air quality model that is based on the Gaussian diffusion equation and employs a mixing zone concept to characterize pollutant dispersion over the roadway. Given source strength, meteorology, site geometry and site characteristics, the model predicts pollutant concentrations for receptors located within 150 meters of the roadway. The CALINE-4 model allows roadways to be broken into multiple links that can vary in traffic volume, emission rates, height, width, etc.

A screening-level form of the CALINE-4 program was used to predict concentrations.[6] Normalized concentrations for each roadway size (2 lanes, 4 lanes, etc.) are adjusted for the two-way traffic volume and emission factor. Calculations were made for a receptor at a corner of the intersection, located at the curb. Emission factors were derived from the California Air Resources Board EMFAC2002 computer program based on a 2004 Bay Area vehicle mix.

The screening form of the CALINE-4 model calculates the local contribution of nearby roads to the total concentration. The other contribution is the background level attributed to more distant traffic. The 1-hour background level in 2004 was taken as 4.6 PPM and the 8-hour background concentration was taken as 3.3 PPM. These backgrounds were estimated using isopleth maps and correction factors developed by the Bay Area Air Quality Management District.

Eight-hour concentrations were obtained from the 1-hour output of the CALINE-4 model using a persistence factor of 0.7.

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[6] Bay Area Air Quality Management District, BAAQMD CEQA Guidelines, 1999.

ATTACHMENT 2: NEW VEHICLE TRAVEL EMISSIONS

Estimates of regional emissions generated by project traffic were made using a program called URBEMIS-2002.[7] URBEMIS-2002 is a program that estimates the emissions that result from various land use development projects. Land use project can include residential uses such as single-family dwelling units, apartments and condominiums, and nonresidential uses such as shopping centers, office buildings, and industrial parks. URBEMIS-2002 contains default values for much of the information needed to calculate emissions. However, project-specific, user-supplied information can also be used when it is available.

Inputs to the URBEMIS-2002 program include trip generation rates, vehicle mix, average trip length by trip type and average speed. Trip generation rates for project land uses were provided by the project transportation consultant. Average trip lengths and vehicle mixes for the Bay Area were used. Average speed for all types of trips was assumed to be 30 MPH.

The URBEMIS-2002 run assumed summertime conditions with an ambient temperature of 85 degrees F.

The analysis was carried out assuming project build-out would occur by the year 2004. The URBEMIS-2002 output is attached.

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[7] Jones and Stokes Associates, Software User's Guide: URBEMIS2002 for Windows with Enhanced Construction Module, Version 7.4, May 2003.

URBEMIS 2002 For Windows 7.4.2

File Name: C:\Program Files\URBEMIS 2002 For Windows\Projects2k2\milpitasex.urb
Project Name: Milpitas Town Center Existing
Project Location: San Francisco Bay Area
On-Road Motor Vehicle Emissions Based on EMFAC2002 version 2.2

SUMMARY REPORT
(Pounds/Day - Summer)

OPERATIONAL (VEHICLE) EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10
TOTALS (lbs/day,unmitigated)	96.86	94.79	996.11	0.73	66.42

URBEMIS 2002 For Windows 7.4.2

File Name: C:\Program Files\URBEMIS 2002 For Windows\Projects2k2\milpitasex.urb
Project Name: Milpitas Town Center Existing
Project Location: San Francisco Bay Area
On-Road Motor Vehicle Emissions Based on EMFAC2002 version 2.2

DETAIL REPORT
(Pounds/Day - Summer)

UNMITIGATED OPERATIONAL EMISSIONS

	ROG	NOx	CO	SO2	PM10
Regnl shop. center	96.86	94.79	996.11	0.73	66.42
TOTAL EMISSIONS (lbs/day)	96.86	94.79	996.11	0.73	66.42

Includes correction for passby trips.
Does not include double counting adjustment for internal trips.

OPERATIONAL (Vehicle) EMISSION ESTIMATES

Analysis Year: 2004 Temperature (F): 85 Season: Summer

EMFAC Version: EMFAC2002 (9/2002)

Summary of Land Uses:

Unit Type	Trip Rate	Size	Total Trips
Regnl shop. center	47.09 trips / 1000 sq. ft.	281.93	13,275.85

Vehicle Assumptions:

Fleet Mix:

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	56.10	2.70	96.80	0.50
Light Truck < 3,750 lbs	15.10	4.60	92.70	2.70
Light Truck 3,751- 5,750	15.60	2.60	96.20	1.20
Med Truck 5,751- 8,500	6.90	2.90	94.20	2.90
Lite-Heavy 8,501-10,000	1.00	0.00	80.00	20.00
Lite-Heavy 10,001-14,000	0.30	0.00	66.70	33.30
Med-Heavy 14,001-33,000	1.00	10.00	20.00	70.00
Heavy-Heavy 33,001-60,000	0.80	0.00	12.50	87.50
Line Haul > 60,000 lbs	0.00	0.00	0.00	100.00
Urban Bus	0.10	0.00	0.00	100.00
Motorcycle	1.60	87.50	12.50	0.00
School Bus	0.20	0.00	0.00	100.00
Motor Home	1.30	15.40	76.90	7.70

Travel Conditions

	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
Urban Trip Length (miles)	11.8	4.6	6.1	11.8	5.0	5.0
Rural Trip Length (miles)	15.0	10.0	10.0	15.0	10.0	10.0
Trip Speeds (mph)	30.0	30.0	30.0	30.0	30.0	30.0
% of Trips - Residential	27.3	21.2	51.5			
% of Trips - Commercial (by land use)						
Regnl shop. center				2.0	1.0	97.0

Changes made to the default values for Land Use Trip Percentages

Changes made to the default values for Operations

The travel mode environment settings changed from both to: none

URBEMIS 2002 For Windows 7.4.2

File Name: C:\Program Files\URBEMIS 2002 For Windows\Projects2k2\milpitasproj.urb
Project Name: Milpitas Town Center
Project Location: San Francisco Bay Area
On-Road Motor Vehicle Emissions Based on EMFAC2002 version 2.2

SUMMARY REPORT
(Pounds/Day - Summer)

OPERATIONAL (VEHICLE) EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10
TOTALS (lbs/day,unmitigated)	122.22	118.39	1,248.00	0.91	82.49

Changes made to the default values for Land Use Trip Percentages

Changes made to the default values for Operations

The double counting internal work trip limit changed from to 123.1503.
The double counting shopping trip limit changed from to 95.6332.
The double counting other trip limit changed from to 232.3165.
The travel mode environment settings changed from both to: none